AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Previously Presented) A Hall sensor on a semiconductor substrate, the Hall sensor comprising:

a Hall plate in the semiconductor substrate, the Hall plate comprising a first zone having a first conduction type;

a second zone in the semiconductor substrate, the second zone having a second conduction type;

a space-charge zone in the semiconductor substrate, the space-charge zone separating the first zone and the second zone;

first contacts for supplying a control current to the first zone; and

second contacts for supplying a compensation current to the second zone.

2. (Previously Presented) The Hall Sensor of claim 1, further comprising a third zone of the second conduction type outside of the first zone relative to the second zone.

3. (Previously Presented) The Hall sensor of claim 1, wherein the semiconductor substrate has the second conduction type.

4. (Previously Presented) The Hall sensor of claim 1, wherein the compensation current flows parallel to the control current; and

wherein a thickness of the Hall plate is substantially constant.

5. (Previously Presented) The apparatus of claim 1, wherein the first zone has an area that is one of cross-shaped, rectangular, square and circular.

6. (Previously Presented) The apparatus of claim 1, wherein the second zone has an area that is one of cross-shaped, rectangular, square and circular.

7. (Currently Amended) The apparatus of claim 1, wherein the first zone is N-doped and the second ~~done~~ zone is P-doped.

8. (Previously Presented) An apparatus comprising:

a first zone having a first doping, the first zone carrying a compensation current;

a second zone having a second doping, the second zone carrying a control current;

a third zone having the first doping;

a first separation zone that separates the first and second zones, the compensation current affecting a thickness of the first separation zone; and

a second separation zone that separates the second and third zones, the control current affecting a thickness of the second separation zone.

9. (Previously Presented) The apparatus of claim 8, wherein the compensation current and the control current affect thicknesses of the first and second separation zones to maintain a substantially constant thickness of the second zone.

10. (Previously Presented) The apparatus of claim 8, wherein the first zone has an area that is one of cross-shaped, rectangular, square and circular.

11. (Previously Presented) The apparatus of claim 8, wherein the second zone has an area that is one of cross-shaped, rectangular, square and circular.

12. (Currently Amended) The apparatus of claim 8, wherein the first and third zones are P-doped and the second zone ~~done~~ is N-doped.

13. (Previously Presented) The apparatus of claim 8, wherein the first and second separation zones comprise space-charged zones that are not doped.

14. (Previously Presented) The apparatus of claim 8, wherein the first zone comprises contacts for receiving the compensation current; and

wherein the second zone comprises contacts for receiving the control current.

15. (Previously Presented) An apparatus comprising:

a first zone having a first doping, the first zone carrying a control current;

a second zone having a second doping, the second zone carrying a compensation current; and

a separation zone that separates the first and second zones, the control current and the compensation current keeping a thickness of the first zone and a thickness of the separation zone substantially constant.

16. (Previously Presented) The apparatus of claim 15, wherein the first zone has an area that is one of cross-shaped, rectangular, square and circular.

17. (Previously Presented) The apparatus of claim 15, wherein the second zone has an area that is one of cross-shaped, rectangular, square and circular.

18. (Currently Amended) The apparatus of claim 15, wherein the first zone is P-doped and the second ~~done~~ zone is N-doped.

19. (Previously Presented) The apparatus of claim 15, wherein the separation zone comprises a space-charged zone that is not doped.

20. (Previously Presented) The apparatus of claim 15, wherein the first and second zones comprise contacts for receiving current.